## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An automatic white balance adjusting method, comprising steps of:

obtaining RGB signals from a color image pick up element;

acquiring color information for each of a plurality of division areas in which one screen of the color image pick up element is divided into a plurality of areas, based on said RGB signals within each division area, wherein said step of acquiring color information of each said division area comprises integrating the RGB signals within said division area for each color to obtain an integrated value for each color, and acquiring R/G ratios and B/G ratios of said integrated value for each color and having the ratios R/G and B/G as the color information of said division area;

determining distances between points which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G;

creating new groups for said (R/G, B/G) points using said distances between said points, wherein said step of creating new groups comprises grouping the color information for adjacent division areas in the same group when said acquired distance is less than or equal to a predetermined value;

counting a number of the points within each of the groups and obtaining a plurality of specific groups from among the new groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number;

obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific group to be the neutral gray (N gray);

calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups; and

adjusting the white balance of said RGB signals based on said white balance correction values.

2-4. (Canceled)

5. (Previously Presented) The automatic white balance adjusting method according to claim 1, wherein said step of calculating the white balance correction values comprises a step of calculating said white balance correction values by weighting the R/G gains and the B/G gains for each of the plurality of specific groups by the number of points within each of the specific groups, and adding the weighted R/G gains and B/G gains for the plurality of specific groups.

6-7. (Canceled)

8. (Previously Presented) The automatic white balance adjusting method according to claim 1, wherein said distances are calculated according to the following formula:

$$D = \sqrt{\left\{(R_1/G_1 - R_2/G_2)^2 + (B_1/G_1 - B_2/G_2)^2\right\}}$$

wherein $R_1/G_1$ and $B_1/G_1$ represent a first piece of color information representing a first point in the color space;

wherein $R_2/G_2$ and $B_2/G_2$ represent a second piece of color information representing a second point in the color space; and

wherein $D$ is the distance between the points which represent color information between said adjacent division areas in the color space represented by R/G and B/G.

9. (Previously Presented) The automatic white balance adjusting method according to claim 1, wherein said distances are calculated according to the following formula:

$$D^2 = (R_1/G_1 - R_2/G_2)^2 + (B_1/G_1 - B_2/G_2)^2$$

wherein $R_1/G_1$ and $B_1/G_1$ represent a first piece of color information representing a first point in the color space;

wherein $R_2/G_2$ and $B_2/G_2$ represent a second piece of color information representing a second point in the color space; and

wherein $D$ is the distance between the points which represent color information between said adjacent division areas in the color space represented by R/G and B/G.

10. (Previously Presented) The automatic white balance adjusting method according to claim 5, wherein said white balance correction values are calculated according to the following formulas:

$$Gr = \sum Gri \times \left( Ni / \sum Ni \right)$$

$$Gb = \sum Gbi \times \left( Ni / \sum Ni \right)$$

wherein $Gr$ is an R/G gain and $Gb$ is an B/G gain;

wherein $N$ is the number of the points of color information within each specific group of said plurality of specific groups; and

wherein $i$ is the range of summation representing a number of the specific groups.

11. (Currently Amended) An automatic white balance adjusting apparatus for adjusting the white balance of an input RGB image, comprising:

a device for obtaining RGB image from a color image pick up element;

a color acquisition device to acquire color information for each of a plurality of division areas of a screen-divided input RGB image;, wherein the color acquisition device comprises:

an integrating device that integrates RGB signals within said division area to obtain an average integrated value for each color in each division area, and

a second calculating device that calculates R/G ratio and B/G ratio of said average integrated value in each division area; wherein said ratios R/G and B/G represent the color information of each division area;

a grouping device for

determining distances between points which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G,

and

creating new groups for said (R/G, B/G) points using said distances between said points;,

wherein the grouping device calculates distances between the points which represent color information between said division areas on a color space represented by R/G and B/G, and groups the points which represent color information for said division areas in the same group when said acquired distance is less than or equal to a predetermined value;

a counting device for counting number of the points within each of the groups;

a calculating device for

obtaining a plurality of specific groups from among the new groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number,

obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific group to be the neutral gray (N gray), and

calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups; and

an adjusting device for adjusting the white balance of said input RGB image based on said calculated white balance correction values.

12-13. Canceled

14. (Currently Amended) The apparatus of claim 11 13, wherein said distances between the points which represent color information is calculated according to the following formula:

$$D = \sqrt{\left\{ (R_1/G_1 - R_2/G_2)^2 + (B_1/G_1 - B_2/G_2)^2 \right\}}$$

wherein $R_1/G_1$ and $B_1/G_1$ represent a first piece of color information representing a first point in the color space;

wherein $R_2/G_2$ and $B_2/G_2$ represent a second piece of color information representing a

second point in the color space; and

wherein $D$ is the distance in the points which represent color information between two adjacent division areas in the color space represented by R/G and B/G.

15. (Currently Amended) The apparatus of claim 11 ~~13~~, wherein said distances between points which represent color information is calculated according to the following formula:

$$D^2 = (R_1/G_1 - R_2/G_2)^2 + (B_1/G_1 - B_2/G_2)^2$$

wherein $R_1/G_1$ and $B_1/G_1$ represent a first piece of color information representing a first point in the color space;

wherein $R_2/G_2$ and $B_2/G_2$ represent a second piece of color information representing a second point in the color space; and

wherein $D$ is the distance in the points which represent color information between two adjacent division areas in the color space represented by R/G and B/G.

16-17. (Canceled)

18. (Previously Presented) The apparatus of claim 11, wherein said calculating device calculates said white balance correction values based on the points which represent color information contained in said specific groups of points which represent color information wherein target color information comprises the representative color information representing the points which represent the color information within each group.

19. (Canceled)

20. (Previously Presented) The apparatus of claim 11, wherein said calculating device calculates said white balance correction values by weighting the calculated white balance correction values for each of said specific groups by the number of points which represent color information within each group, and adding the weighted white balance correction values.

21. (Previously Presented) The apparatus of claim 20, wherein said white balance correction values are calculated according to the following formulas:

$$Gr = \sum Gri \times \left( Ni / \sum Ni \right)$$

$$Gb = \sum Gbi \times \left( Ni / \sum Ni \right)$$

wherein $Gr$ is an R/G gain and $Gb$ is an B/G gain;

wherein $N$ is the number of the points of color information within each specific group; and

wherein $i$ is the range of summation representing a number of the specific groups.

22. (Previously Presented) The automatic white balance adjusting method according to claim 1, wherein said acquiring step

calculates white balance fine adjustment values; and

multiplies the RGB signals by the white balance fine adjustment values, to obtain adjusted RGB signals to be used in said determining step.

23. (Previously Presented) The automatic white balance adjusting method according to claim 1, further comprising:

calculating white balance fine adjustment values;

discriminating whether the white balance adjusting mode is the manual white balance adjusting mode or the automatic white balance adjusting mode; and

discriminating the white balance adjusting mode as the manual white balance adjusting mode, then multiplying RGB signals by the white balance fine adjustment values and multiplying the RGB signals by the white balance correction values according to a light source species selected by the user.

24. (Previously Presented) The automatic white balance adjusting method according to claim 22, further comprising:

obtaining RGB signals by photographing a gray chart under an adjusted light source

corresponding to a predetermined light source species;

making white balance adjustment by multiplying the RGB signals obtained by photographing the gray chart by preset white balance correction values corresponding to the predetermined light source species;

calculating average integrated values for the RGB signals obtained by photographing the gray chart over one full screen after the white balance adjustment; and

calculating the white balance fine adjustment values, wherein the white balance fine adjustment values are ratios of the calculated average integrated values to target average integrated values corresponding to a predetermined light source species.


25. (Previously Presented) The automatic white balance adjusting method according to claim 23, further comprising:

obtaining RGB signals by photographing a gray chart under an adjusted light source corresponding to a predetermined light source species;

making white balance adjustment by multiplying the RGB signals obtained by photographing the gray chart by preset white balance correction values corresponding to the predetermined light source species;

calculating average integrated values for the RGB signals obtained by photographing the gray chart over one full screen after the white balance adjustment; and

calculating the white balance fine adjustment values, wherein the white balance fine adjustment values are ratios of the calculated average integrated values to target average integrated values corresponding to a predetermined light source species.


26. (Previously Presented) The automatic white balance adjusting method according to claim 1, further comprising:

discriminating light source species at the actual photographing based on the RGB signals; and

making white balance adjustment according to the discriminated light source species.

27. (Previously Presented) The automatic white balance adjusting method according to claim 26, wherein said discriminating light source species at the actual photographing, discriminating the light source species by obtaining the light source species having the color information to which the color information representing the group having the maximum number of the points which represent color information is closest among the color information of light source species.

28. (Previously Presented) The apparatus of claim 11, wherein said color acquisition device :

calculates white balance fine adjustment values; and

multiplies the RGB signals by the white balance fine adjustment values, to obtain adjusted RGB signals to be used by said grouping device.

29. (Previously Presented) The apparatus of claim 11, wherein said color acquisition device

calculates white balance fine adjustment values;

discriminates whether the white balance adjusting mode is the manual white balance adjusting mode or the automatic white balance adjusting mode; and

discriminates the white balance adjusting mode as the manual white balance adjusting mode, then multiplies RGB signals by the white balance fine adjustment values and multiplies the RGB signals by the white balance correction values according to a light source species selected by the user.

30. (Previously Presented) The apparatus of claim 28, wherein said color acquisition device

obtains RGB signals by photographing a gray chart under an adjusted light source corresponding to a predetermined light source species;

makes white balance adjustment by multiplying the RGB signals obtained by photographing the gray chart by preset white balance correction values corresponding to the

predetermined light source species;

calculates average integrated values for the RGB signals obtained by photographing the gray chart over one full screen after the white balance adjustment; and

calculates the white balance fine adjustment values, wherein the white balance fine adjustment values are ratios of the calculated average integrated values to target average integrated values corresponding to a predetermined light source species.

31. (Previously Presented) The apparatus of claim 29, wherein said color acquisition device

obtains RGB signals by photographing a gray chart under an adjusted light source corresponding to a predetermined light source species;

makes white balance adjustment by multiplying the RGB signals obtained by photographing the gray chart by preset white balance correction values corresponding to the predetermined light source species;

calculates average integrated values for the RGB signals obtained by photographing the gray chart over one full screen after the white balance adjustment; and

calculates the white balance fine adjustment values, wherein the white balance fine adjustment values are ratios of the calculated average integrated values to target average integrated values corresponding to a predetermined light source species.

32. (Previously Presented) The apparatus of claim 11, further comprising:

discriminating light source species at the actual photographing based on the RGB signals; and

making white balance adjustment according to the discriminated light source species.

33. (Previously Presented) The apparatus of claim 32, wherein said discriminating light source species at the actual photographing, discriminating the light source species by obtaining the light source species having the color information to which the color information representing the group having the maximum number of the points which represent color information is

closest among the color information of light source species.

34. (Previously Presented) The automatic white balance adjusting method according to claim 1, wherein said color information which represents said each specific group  is the color information  in the center of said each specific group in the color space or average color information for said each specific group.

35. (Previously Presented) The automatic white balance adjusting apparatus according to claim 11, wherein said color information which represents said each specific group  is the color information  in the center of said each specific group or average color information for said each specific group.